

# High Efficiency, High Output Plastic Melt Waste Compactor (HEHO-PMWC), Phase II

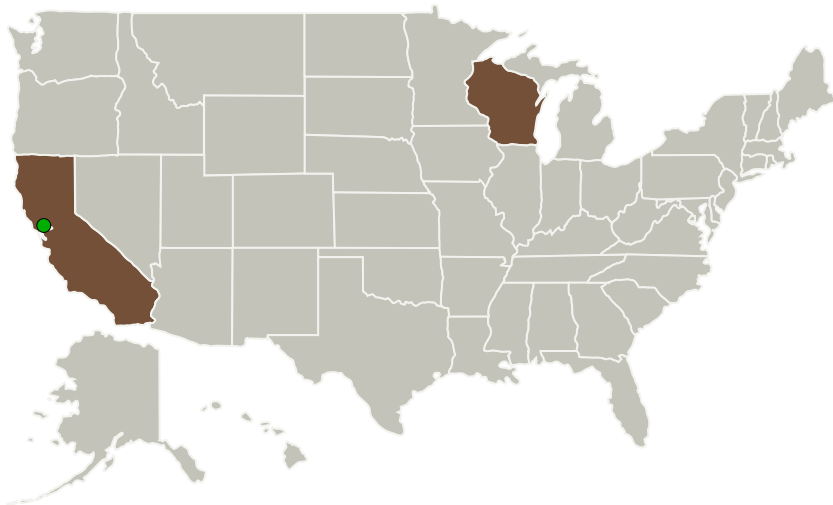
Completed Technology Project (2011 - 2014)



## Project Introduction

The innovative High Efficiency, High Output Plastic Melt Waste Compactor (HEHO-PMWC) is a trash dewatering and volume reduction system that uses heat melt compaction to remove nearly 100% of water from trash and reduce the volume by up to 11 times. The HEHO-PMWC system incorporates novel methods to compress the trash, recover water, and remove the resultant plastic tiles. This system requires access to power, data, and cooling interfaces. The system is suitable for recovering water and compacting all trash sources on the ISS. The system has also been designed to recover water from brine solutions produced by primary wastewater processing systems. The HEHO-PMWC works by heating and compressing trash simultaneously to first remove water and then to melt plastic in the trash. The melted plastic encapsulates the trash into a 16 inch square tile, approximately ½ inch thick. The square tile is easier to store than a round tile and is a more effective radiation shield. Variables such as transport vehicle availability, ISS mass, power and space availability, and ISS cooling capabilities were considered. The resulting HEHO-PMWC system, proposed here, was sized to process 3-4 kg of trash per batch while operating three times per day.

## Primary U.S. Work Locations and Key Partners



High Efficiency, High Output  
Plastic Melt Waste Compactor  
(HEHO-PMWC), Phase II

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Organizations Performing Work	Role	Type	Location
Sierra Nevada Corporation(SNC)	Lead Organization	Industry Women-Owned Small Business (WOSB)	Sparks, Nevada
● Ames Research Center(ARC)	Supporting Organization	NASA Center	Moffett Field, California
Orbital Technologies Corporation	Supporting Organization	Industry Women-Owned Small Business (WOSB)	Madison, Wisconsin

## Primary U.S. Work Locations

California	Wisconsin
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## Project Transitions

▶ **June 2011:** Project Start

✓ **June 2014:** Closed out

## Closeout Documentation:

- Final Summary Chart(<https://techport.nasa.gov/file/138913>)

## Organizational Responsibility

**Responsible Mission Directorate:**

Space Technology Mission Directorate (STMD)

**Lead Organization:**

Sierra Nevada Corporation (SNC)

**Responsible Program:**

Small Business Innovation Research/Small Business Tech Transfer

## Project Management

**Program Director:**

Jason L Kessler

**Program Manager:**

Carlos Torrez

**Principal Investigator:**

Jeff R Johnson

**Co-Investigator:**

Jeff T Johnson

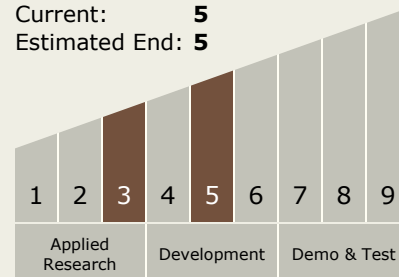
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## Technology Maturity (TRL)

Start: **3**  
Current: **5**  
Estimated End: **5**



## Technology Areas

### Primary:

- TX06 Human Health, Life Support, and Habitation Systems
  - └ TX06.1 Environmental Control & Life Support Systems (ECLSS) and Habitation Systems
    - └ TX06.1.3 Waste Management

## Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System